



Product Technology and Standardization Team (DESC-QT)

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Chemist

Defense Energy Support Center



Organization



- Division of the Quality/Technical Directorate (DESC-Q)
- Degreed Chemists or Related Sciences
- Lead on All Criteria Related to Product Specifications and Development



Overall Functions



- DESC Center-Wide Support
- Measurement & Quantity Determination
- Standardization & Cataloging
- Organizations & International Forums
- Petroleum Quality Information System (PQIS)
- Energy Legislation
- Alternative Products Support
- R&D Energy Initiatives



Center-wide Support (Bulk & Direct Delivery)



- DESC-B / DESC-P: Support Contracting in every aspect of the procurement cycle
- Review Acquisition Plan
- Review Purchase Requests
- Preaward/Postaward Surveys
- Exceptions, Deviations & Waivers Database
- Update Contract Specification and Measurement Clauses



Center-Wide Support



Financial Operation (DESC-R)

- Program Budget Decision
- Standard Price List
- National Stock Numbers

Business Integration (DESC-T)

- Policy Coordination

Energy Enterprise (DESC-E)

- Supporting Energy Initiatives

Executive Agent (DESC-X)

- Support all Integrated Project Teams (Quality, Distribution, IT Management & Equipment)

Legal (DESC-G)

- Environmental Legislation
- Legislative Inquires
- Evolving Product Requirements

Fuel Card Program (DESC-K)

- SEA Card

Installations (DESC-A)

- Coal

Facilities (DESC-F)

- International Agreements
- Environmental

Aerospace Energy (DESC-M)

- Every Aspect of Procurement Cycle



Measurement & Quantity Determination



- Quantity Measurement & Determination through Standard Processes
- Represents DESC in implementing the metric system and represents DoD on petroleum product measurement matters
- Develops and maintains procurement clauses for quantity determination



Standardization & Cataloging



- Lead Standardization Activity (LSA) for Federal Supply Group for Fuels, Lubricants, Oils & Waxes
- LSA for Liquid Propellant Fuels
- Market research & specification analysis
- Work with DLA Standardization Executive Agency



Organizations & International Forums

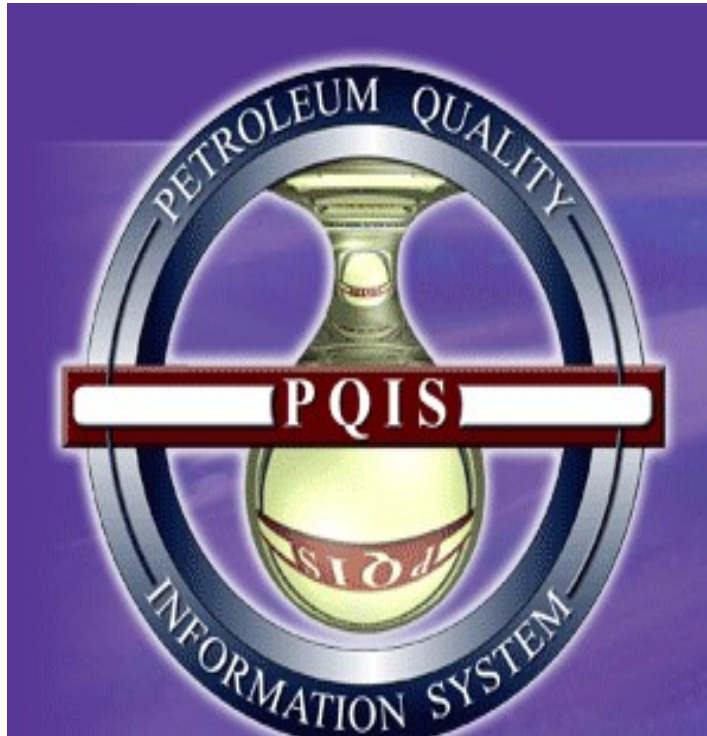


- American Chemical Society (ACS)
- Coordinating Research Council (CRC)
 - Member of Steering Committee (2)
- American Petroleum Institute (API)
- Clean Air Act Services Steering Committee (CAASSC)
- ASTM International





Petroleum Quality Information System (PQIS)



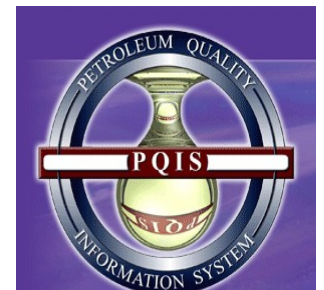
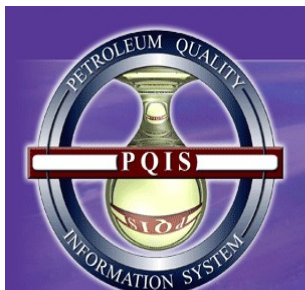
- DESC-QT Maintains and Manages the PQIS Database
- Purpose: OSD Directive, 1989: To Facilitate the Collection and Dissemination of Standardized Fuel Quality Data
- Allows for a Proactive Approach in Identifying and Monitoring Product Quality Trends Across a Wide Spectrum



Petroleum Quality Information System (PQIS)



- Maintains and oversees the PQIS database
 - Largest Publication of Fuel Quality Information Worldwide
 - Used by Military Customers and Commercial Industry (TWA 800, GE engine development, trends, etc.)
 - Publication includes Data from UK MOD Jet A-1 and Russian TS-1 Purchases





Energy Legislation



Environmental Legislation

- National - U.S. & Overseas
- State - (e.g. California, Minnesota, Texas)

Information Resources

- Federal Register
- Congressional Quarterly
- International Fuel Quality Center (IFQC)
- Professional contacts

Work Products

- Updated specification clauses

Unclassified



Alternative Products Support



- E85
 - 85% Ethanol and 15% Gasoline
- Biodiesel
 - 80% Diesel and 20% Biodiesel
 - Participated with ASTM International to Develop a Commercial Specification



Alternative Products Support



DEFENSE ENERGY SUPPORT CENTER

Biodiesel Technical Specifications

Newly Approved - ASTM **Specification D7467: Diesel** **Fuel Oil, Biodiesel Blend** **(B6 to B20)**

- Published October 2008
- Adopted by DESC in June 2009 for B20 Procurements for Military and Federal Activities



Designation: D 7467 – 09

AN American National Standard

Standard Specification for Diesel Fuel Oil, Biodiesel Blend (B6 to B20)¹

This standard is issued under the fixed designation D 7467; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last approval. A superscript symbol (s) indicates an editorial change since the last revision or approval.

1. Scope*

1.1 This specification covers fuel blend grades of 6 to 20 volume percent (%) biodiesel with the remainder being a light middle or middle distillate diesel fuel, collectively designated as B6 to B20. These grades are suitable for various types of diesel engines.

1.1.1 The biodiesel component of the blend shall conform to the requirements of Specification D 6751. The remainder of the fuel shall be a light middle or middle distillate grade diesel fuel conforming to Specification D 975 grades No. 1-D and No. 2-D of any sulfur level specified with the following exceptions. The light middle or middle distillate grade diesel fuel whose sulfur level, aromatic level, cetane, or lubricity falls outside of Specification D 975 may be blended with biodiesel meeting Specification D 6751, provided the finished mixtures meets this specification.

1.1.2 The fuel sulfur grades are described as follows:
1.1.2.1 *Grade B6 to B20 S15*—A fuel with a maximum of 15 ppm sulfur.

1.1.2.2 *Grade B6 to B20 S500*—A fuel with a maximum of 500 ppm sulfur.

1.1.2.3 *Grade B6 to B20 S5000*—A fuel with a maximum of 5000 ppm sulfur.

1.2 This specification prescribes the required properties of B6 to B20 biodiesel blends at the time and place of delivery. The specification requirements may be applied at other points in the production and distribution system when provided by agreement between the purchaser and the supplier.

1.2.1 Nothing in this specification shall preclude observance of federal, state, or local regulations that may be more restrictive.

NOTE: 1—The generation and dissipation of static electricity can create problems in the handling of distillate diesel fuel oils. For more information on this subject, see Guide D 4865.

1.3 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

¹ This specification is under the jurisdiction of ASTM Committee D02 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.10 on Burner, Diesel, Non-Aviation Gas Turbine, and Marine Fuels.
Current edition approved March 1, 2009. Published March 2009. Originally approved in 2008. Last previous edition approved in 2008 as D 7467-08.

2. Referenced Documents

2.1 *ASTM Standards*²:

- D 56 Test Method for Flash Point by Tag Closed Cup Tester
- D 86 Test Method for Distillation of Petroleum Products at Atmospheric Pressure
- D 93 Test Methods for Flash Point by Pensky-Martens Closed Cup Tester
- D 129 Test Method for Sulfur in Petroleum Products (General Bomb Method)
- D 130 Test Method for Corrosiveness to Copper from Petroleum Products by Copper Strip Test
- D 445 Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and Calculation of Dynamic Viscosity)
- D 482 Test Method for Ash from Petroleum Products
- D 524 Test Method for Ramsbottom Carbon Residue of Petroleum Products
- D 613 Test Method for Cetane Number of Diesel Fuel Oil
- D 664 Test Method for Acid Number of Petroleum Products by Potentiometric Titration
- D 975 Specification for Diesel Fuel Oils
- D 976 Test Method for Calculated Cetane Index of Distillate Fuels
- D 1266 Test Method for Sulfur in Petroleum Products (Lamp Method)
- D 1319 Test Method for Hydrocarbon Types in Liquid Petroleum Products by Fluorescent Indicator Adsorption
- D 1552 Test Method for Sulfur in Petroleum Products (High-Temperature Method)
- D 2500 Test Method for Cloud Point of Petroleum Products
- D 2622 Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-ray Fluorescence Spectrometry
- D 2709 Test Method for Water and Sediment in Middle Distillate Fuels by Centrifuge
- D 2880 Specification for Gas Turbine Fuel Oils
- D 3117 Test Method for Wax Appearance Point of Distillate Fuels
- D 3120 Test Method for Trace Quantities of Sulfur in Light

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For Annual Book of ASTM Standards volume information, refer to the standard's Document Summary page on the ASTM website.

*A Summary of Changes section appears at the end of this standard.

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Unclassified



Alternative Products Support



Biodiesel Technical Specifications

ASTM Specification D6751: Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels

- Used With Petroleum-Based Diesel Fuels
- Blenders Must be Registered with EPA under 40CFR79



Designation: D 6751 – 07b¹

An American National Standard

Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels¹

This standard is issued under the fixed designation D 6751; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last approval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or approval.

¹ NOTE—Corrected EN 14110 mass percent in Table 1 editorially in March 2008.

1. Scope*

1.1 This specification covers biodiesel (B100) Grades S15 and S500 for use as a blend component with middle distillate fuels.

1.2 This specification prescribes the required properties of diesel fuels at the time and place of delivery. The specification requirements may be applied at other points in the production and distribution system when provided by agreement between the purchaser and the supplier.

1.3 Nothing in this specification shall preclude observance of federal, state, or local regulations which may be more restrictive.

NOTE 1—The generation and dissipation of static electricity can create problems in the handling of distillate fuel oils with which biodiesel may be blended. For more information on the subject, see Guide D 4865.

1.4 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

2. Referenced Documents

2.1 ASTM Standards:²

- D 93 Test Methods for Flash Point by Pensky-Martens Closed Cup Tester
- D 130 Test Method for Corrosiveness to Copper from Petroleum Products by Copper Strip Test

D 189 Test Method for Conradson Carbon Residue of Petroleum Products

D 445 Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and Calculation of Dynamic Viscosity)

D 524 Test Method for Ramsbottom Carbon Residue of Petroleum Products

D 613 Test Method for Cetane Number of Diesel Fuel Oil

D 664 Test Method for Acid Number of Petroleum Products by Potentiometric Titration

D 874 Test Method for Sulfated Ash from Lubricating Oils and Additives

D 974 Test Method for Acid and Base Number by Color-Indicator Titration

D 975 Specification for Diesel Fuel Oils

D 976 Test Method for Calculated Cetane Index of Distillate Fuels

D 1160 Test Method for Distillation of Petroleum Products at Reduced Pressure

D 1266 Test Method for Sulfur in Petroleum Products (Lump Method)

D 1796 Test Method for Water and Sediment in Fuel Oils by the Centrifuge Method (Laboratory Procedure)

D 2274 Test Method for Oxidation Stability of Distillate Fuel Oil (Accelerated Method)

D 2500 Test Method for Cloud Point of Petroleum Products

D 2622 Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-ray Fluorescence Spectrometry

D 2709 Test Method for Water and Sediment in Middle Distillate Fuels by Centrifuge

D 2880 Specification for Gas Turbine Fuel Oils

D 3117 Test Method for Wax Appearance Point of Distillate Fuels

D 3120 Test Method for Trace Quantities of Sulfur in Light Liquid Petroleum Hydrocarbons by Oxidative Microcoulometry

¹ This specification is under the jurisdiction of ASTM Committee D02 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.E0 on Blended, Diesel, Non-Aviation Gas Turbine, and Marine Fuels. Current edition approved Sept. 15, 2007. Published October 2007. Originally approved in 1999 as D 6751-99. Adopted as a standard in 2002 as D 6751-02. Last previous edition approved in 2007 as D 6751-07a.

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For Annual Book of ASTM Standards volume information, refer to the standard's Document Summary page on the ASTM website.



Alternative Products Support



Ethanol Technical Specification

- ASTM Specification D-5798: Fuel Ethanol (ed75-ed85) for Automotive Spark-Ignition Engines
- Covers a Fuel Blend, Nominally 75 to 85 Volume % Denatured Fuel Ethanol and 25 to 15 Additional Volume % Gasoline for Use in Ground Vehicles with Automotive Spark-Ignition Engines
- Percent Ethanol is Adjusted Seasonally and Geographically Adjusted to Meet Volatility Requirements for Vehicles Varying Ambient Temperature Conditions

Unclassified



Designation: D 5798 – 07

An American National Standard

Standard Specification for Fuel Ethanol (Ed75-Ed85) for Automotive Spark-Ignition Engines¹

This standard is issued under the fixed designation D 5798; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last approval. A superscript (s) indicates an editorial change since the last revision or approval.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope²

1.1 This specification covers a fuel blend, nominally 75 to 85 volume % denatured fuel ethanol and 25 to 15 additional volume % hydrocarbons for use in ground vehicles with automotive spark-ignition engines. **Appendix X1** discusses the significance of the properties specified.

1.2 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.3 The following safety hazards caveat pertains only to the test method portion, **Annex A1**, of this specification. *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

- D 86 Test Method for Distillation of Petroleum Products at Atmospheric Pressure
- D 130 Test Method for Corrosiveness to Copper from Petroleum Products by Copper Strip Test
- D 381 Test Method for Gum Content in Fuels by Jet Evaporation
- D 512 Test Methods for Chloride Ion in Water
- D 525 Test Method for Oxidation Stability of Gasoline (Induction Period Method)
- D 1266 Test Method for Sulfur in Petroleum Products (Lamp Method)

¹ This specification is under the jurisdiction of ASTM Committee D02 on Petroleum Products and Lubricants and is under the direct responsibility of Subcommittee D02.A01 on Gasoline and Gasoline-Oxygenate Blends.

Current edition approved May 1, 2007. Published July 2007. Originally approved in 1995. Last previous edition approved in 2005 as D 5798-05.

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For Annual Book of ASTM Standards volume information, refer to the standard's Document Summary page on the ASTM website.

³ A Summary of Changes section appears at the end of this standard.



Alternative Products Support



DEFENSE ENERGY SUPPORT CENTER

Current B20 Customers in the U.S.

Air Force:

54 Locations

Navy:

27 Locations

Marine Corps:

9 Locations

Army:

5 Locations

**All other
Federal
Agencies:**

49 Locations



Alternative Products Support



Current E85 Customers in the U.S.



Air Force:	15 Locations
Navy:	6 Locations
Marine Corps:	2 Locations
Army:	4 Locations
All Federal Agencies:	12 Locations



R&D Energy Initiatives



Synthetic Fuels

- Supporting Military Initiatives on:
 - Fischer-Tropsch Gas-to Liquid Fuel Blends (from Coal, Natural Gas and Biomass Feed Stocks)
 - Hydro-Treated Renewable Jet Fuels Blends from Algae
 - Working with Industry on Supply and Uses for Synthetic Fuels



R&D Energy Initiatives



Alternative Fuels Technology Development through Presidential and Congressional Funding

- Cellulosic Biofuels Research
- Biomass-to-Fuels Program
- Advanced Fuel Cell Technology Stationary System Program
- Biomass Production and Processing Technology for Hydrogen Program



R&D Product Support



- Program Manager for DESC Funded Projects
- Establishes and Implements Long-Term Projects and Studies to Resolve Petroleum Product and Additive Related Issues
- Partner with Commercial Industry, Military Services & Federal Agencies

Alternative Fuel Information Station Architecture

<p>EPAct Compliance Tutorial</p> <p><u>Non-Audio Version</u> (1 MB)</p> <p><u>Audio Version</u> (75MB)</p>	<p>E85 Tutorial</p> <p><u>Non-Audio Version</u> (1 MB)</p> <p><u>Audio Version</u> (68MB)</p>	<p>BioDiesel Tutorial</p> <p><u>Non-Audio Version</u> (1 MB)</p> <p><u>Audio Version</u> (97MB)</p>	<p>Synthetic Fuels Tutorial</p> <p>(Work in Progress)</p>	<p>Alternative Fuel Logistics Tutorial</p> <p><u>Non-Audio Version</u> (1 MB)</p> <p><u>Audio Version</u> (125MB)</p>
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(Important Note: Due to the large size of the Audio Version files below, it may take several minutes for them to open on your system. Please be patient.)

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| <ul style="list-style-type: none"> • How Alternative Fuels help in Epact Compliance • (Fleet Management Program) | <ul style="list-style-type: none"> • E85 Definition • Production • Properties • Advantages/Disadvantages | <ul style="list-style-type: none"> • Biodiesel Definition • Production • Properties • Advantages/Disadvantages | <ul style="list-style-type: none"> • Synthetic Fuels Definition • Production • Properties • Advantages/Disadvantages | <ul style="list-style-type: none"> • DESC Processes • Current Infrastructure • How to Buy Alt. Fuels • Changes needed to handle Alt. fuels |
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This Web Page is Available at

<http://www.desc.dla.mil/DCM/DCMPage.asp?pageid=591>



? Questions? ?
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